

## The Effect of Motor Ability on Physical Education Learning Achievement of Elementary School Students



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**ABSTRACT:** This study aims to determine the relationship between motor skills and the concentration of upper-class students in public elementary schools in Bantul, Yogyakarta. This type of research is quantitative with a correlational approach. The population in this study were high school students in public elementary schools in Bantul Yogyakarta, totaling 125 students. Motoric ability instruments use Barrow Motor Ability for Elementary Schools, which include: Shuttle-run test 4 x 10 meters, test to throw and catch a ball 1 meter from a wall, Stork Stand Positional Balance test, 30-meter sprint test, while physical education learning achievements use report value. The data analysis technique uses Pearson Correlation Product Moment analysis. The results showed a significant relationship between motor skills and the concentration of upper-class students in elementary schools. There was a relationship between motor skills and physical education learning achievements of students, with an  $r$  count of 0.395 and a coefficient of determination of 15.60%. The correlation coefficient is positive, meaning that if the motor skills get better, the physical education learning achievement will get better. For teachers and students, the results of this study can be a reference for improving motor skills because they affect Physical Education learning achievement. For other researchers, research can be carried out with other independent variables so that more variables that affect motor skills can be identified.

**KEYWORDS:** motor skills, learning achievement, physical education

### INTRODUCTION

Education is the main source for developing the quality of human resources. With education, humans are increasingly aware of the importance of thinking processes to determine the quality of their future. Through education, a person can determine his future starting from school. Many also believe that education and knowledge are absolutely necessary to survive in the era of global competition that is happening in every nation. An inseparable part of education in schools is physical education (PE). Physical education allows the greatest interaction between students, such as sharing space and materials, competing in games and matches, and so on. Likewise, compared to other subjects, physical education provides a different context for the moral development of young people because it can develop values such as sportsmanship in young people. In addition, physical education provides students with many opportunities to experience ethical codes of behavior, group cohesion, respect for others, and many socially desirable behaviors.

Physical education is useful for students in providing opportunities to be involved in sports directly, thereby creating new experiences that are more useful for students. Physical Education aims to develop students' motivation in sports and physical activity in fulfilling their basic psychological needs. What's more, it can be beneficial for other education, including the development of social skills, self-confidence, and behavioral persistence (Chu & Zhang, 2018). Physical Education studies the skills of various sports branches, indirectly teaching the values of soft skills, such as sportsmanship, motivation, discipline, teamwork, emotional control, fighting spirit, communication skills, and others (Jung & Choi, 2016). Technical skills in sports alone are still lacking because these skills must also be combined with other people in team sports, which means that they must be carried out collectively or in teams.

The final result of a study is set forth in the form of learning achievement scores on a report card. Learning outcomes are something that has been achieved by students after attending lessons at school. The school expects that all students will get satisfactory learning outcomes after participating in learning. This is so that every student gets the same knowledge and experience in learning. Student learning outcomes are essentially changes in behavior. Behavior as a result of learning broadly includes the cognitive, affective, and psychomotor fields (Maâ, 2018).

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Physical Education, which is carried out for elementary school children, is one of the efforts to develop children through integrated stimulation so that they can develop optimally. Physical activity can be one of the supports that can be done daily for good health so that it can support the educational process, which will have a good impact on academic achievement. Learning achievement is one of the achievements to measure learning outcomes for each student. The term physical activity refers to the movement of limbs that causes energy expenditure which is very important for maintaining physical and mental health, as well as maintaining the quality of life in order to stay healthy and fit throughout the day. Motor development basically develops in line with the maturity of the child's nerves and muscles. Motor development is a process that goes hand in hand with increasing age gradually and continuously, in which individual movements increase from a simple, unorganized, and unskilled state to the mastery of complex and well-organized motor abilities.

Motor skills are very important to be taught to elementary school students. The characteristics of children who always move happily so that good motor skills are needed for children's development. Children's motor development is a process of maturity related to different aspects of form or function, including social-emotional changes (Cook et al., 2019); (Fathirezaie et al., 2021); (Brown et al., 2020). When children enter the school phase, children carry out activities at school with good performance if their physical foundation is strong. This can have a major impact on later academic achievement. Children with good motor skills will make children comfortable moving and more confident in carrying out activities in their development which can have an impact on achievement.

Gross motor movements are movements that are controlled by large muscle groups. These muscles are integral in producing various movements, such as walking, running, and jumping. Different levels of gross motor skills certainly play different roles for children in adjusting to their environment. The function of motor skills is often reflected in a child's ability to complete motor tasks (Newell, 2020). Gross motor quality can be seen from how far the child is able to perform the given motor task. The functions of gross motor skills are (a) self-help skills, (b) social assistance skills, (c) play skills, and (d) school skills (Djuanda & Adipura, 2020).

As stated (Weiss, 2020); (Akbar & Tohar, 2021) that motor movements are a strong basis and foundation in supporting learning activities, playing, and socialization, and also a form of building children's self-confidence. Motoric abilities are useful for children for children's cognitive development (Veldman et al., 2019); (Lee et al., 2020). Motoric ability is an important factor in the development of the individual as a whole from an early age to adulthood. These motor skills can be grouped according to the size of the muscles and related body parts, namely gross motor skills and fine motor skills.

Students with good motor skills certainly have good endurance, speed, balance, agility, and movement coordination. This will be very meaningful in following the learning process, learning evaluation process, and having a positive impact on the physical education learning outcomes obtained. Other studies that have been conducted by (Sutapa et al., 2020) show results that the motor development index in preschool children is still very low. This is shown in the combined index (MDI) of only 0.3872147. Judging from the magnitude of the index, when compared to the magnitude of the MDI index, which ranges from 0 to 1, motor development is still categorized as low.

### METHOD

This type of research is correlational research. Correlational research is research conducted to determine whether there is a relationship between two or several variables. The population in the study were upper-class students aged 10-12 years in public elementary schools in Banul Regency, totaling 125 students. The instrument used to measure motor skills is Barrow Motor Ability for Elementary Schools which includes: a 4 x 10-meter Shuttle-run test, 1-meter ball catch throw test with a wall, a Stork Stand Positional Balance test, 30-meter sprint test. This test has a reliability of 0.93 and a validity of 0.87. Learning achievement is based on report cards. The data analysis technique is Correlation Product Moment. Previously, prerequisite tests for normality and linearity were carried out.

### FINDING

The results of the descriptive analysis are intended to determine the motor skills and physical education learning achievements of upper class students in public elementary schools in Bantul, Yogyakarta. Complete results in Table 1.

**Table 1. Descriptive Statistical Variables of Motoric Ability**

Statistic	N	Mean ± SD
Motor ability (X)	125	300.00 ± 29.42
Physical education learning achievement (Y)	125	77.78 ± 3.94

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The data normality test in this study used the Kolmogorov-Smirnov method. The results of the data normality test performed in each analysis group were carried out with the SPSS version 20.0 for windows software program with a significance level of 5% or 0.05. The summary of the data is presented in Table 2.

**Table 2. Normality Test Results**

No	Variable	<i>p</i>	Sig	Description
1	Motor ability (X)	0.736	0.05	Normal
2	Physical education learning achievement (Y)	0.342	0.05	Normal

Based on the statistical analysis of the normality test that was carried out using the Kolmogorov-Smirnov test in Table 2, on the variables of motor skills and physical education learning achievements of students, the normality test results were obtained with a significance value of  $p > 0.05$ , which means that the data is normally distributed.

Testing the linearity of the relationship is carried out through the F test. The relationship between the independent variable (X) and the dependent variable (Y) is declared linear if the sig value  $> 0.05$ . The results of the linearity test can be seen in Table 3 below:

**Table 3. Linearity Test Results**

Functional Relations	<i>p</i>	Sig.	Description
Motoric ability (X)* Physical education learning achievement (Y)	0.336	0.050	Linier

From Table 3 above, it can be seen that the significance value of  $p > 0.05$ . So, the relationship between motor ability variables and students' physical education learning achievement is stated to be linear.

The significance test of the correlation coefficient was carried out by consulting the r table. If the r count is consulted with the r table using an error level of 5%. If the significance value of  $p < 0.05$ , then the hypothesis is accepted, and if the significance value of  $p > 0.05$ , then the hypothesis is rejected. The results of hypothesis testing are presented as follows.

**Table 4. Correlation Test Results**

<i>Model Summary</i>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.395 <sup>a</sup>	0.156	0.152	4.70642
a. Predictors: (Constant). Motor ability (X1)				

Based on Table 4 above, the coefficient r count is 0.395, while the significance value is 0.000. The r-count value is 0.396 and the significance value is  $0.000 < 0.05$ , so it can be interpreted that there is a significant relationship between motor skills and physical education learning achievement for upper-class students in public elementary schools in Bantul, Yogyakarta. The correlation coefficient is positive, meaning that if the motor skills get better, the physical education learning achievement will also get better.

The coefficient of determination R Square or the contribution of motor skills to the physical education learning achievement of upper-class students in public elementary schools in Bantul Yogyakarta is 0.156 or 15.60%. This means that the motor ability variable affects the physical education learning achievement of upper-class students in public elementary schools in Bantul Yogyakarta Regency by 15.60%, while the rest is influenced by other factors by 84.40% outside of this study.

## DISCUSSION

Based on the results of the study showed that there was a relationship between motor skills and physical education learning achievements of students, with a  $r_{count}$  of 0.395 and a coefficient of determination of 15.60%. The correlation coefficient is positive, meaning that if the motor skills get better, the physical education learning achievement will get better. The results of the research are supported by the research (Yuniko & Zalfendi, 2018), showing that there is a significant (significant) relationship between motor skills and physical education learning outcomes of Elementary School Students 194 Tebo Regency. Field (Noviardila, 2019) results show that the relationship between motor skills and physical education learning outcomes is significant, with a 5% confidence level. The better a person's motor skills, the better the physical education learning outcomes.

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Physical education is an educational process that utilizes physical activity to produce holistic changes in individual quality, both physically, mentally, and emotionally (Jariono et al., 2020). Physical education is a process of educating a person as an individual or a member of society, which is carried out consciously and systematically through various physical activities to obtain physical growth, physical health, physical fitness, abilities, and skills, intelligence, and the development of character and personality in the context of forming quality Indonesian individuals. Social and affective learning outcomes, when combined, help develop health as an important and recognized element of a comprehensive physical education program (Richards et al., 2019).

Physical education is an important subject because it helps develop students as individuals and social beings so that they grow and develop naturally. This is because the implementation prioritizes physical activity, especially sports and healthy living habits. With sports and health physical education, a person's potential will be able to develop (O'Donnell et al., 2020). Physical education emphasizes motor skills and physical activity as self-expression, with physical activity or movement activities so far for goals, decision-making, and so on, and can be modified in the learning (Knudson & Brusseau, 2021). Motor movement is a strong basis and foundation in supporting learning, playing, and socializing activities, and is also a form of building children's self-confidence (Akbar & Tohar, 2021). Motoric abilities are useful for children for children's cognitive development (Veldman et al., 2019).

Motor skills are the ability to carry out a series of physical movements in business and coordination so that automatic movements are realized. The motor skills in question are skills in performing physical movements that require coordination between muscles and nerves to produce automated movements (Randjelović et al., 2019); (Uysal & Düger, 2020). Motoric ability is the quality of the results of individual movements in carrying out movements, both movements that are not sports or movements in sports, or the maturity of the appearance of motor skills. The higher a person's motor skills, it is possible that the work power will be higher, and vice versa. Therefore, motor skills can be seen as a source of success in performing motor skills tasks (Matheis & Estabillo, 2018).

Motoric ability is to move various parts of the body at the behest of the brain and regulate body movements against various influences from outside and inside. Motor skills are very important to be mastered by someone because they can carry out daily activities. Without having gross motor skills, they will not be able to run, jump, push, throw, catch, or kick. This activity uses gross motor (large muscles) in a person's body. So when viewed from the notion of gross motor skills, gross motor skills greatly affect the learning outcomes of physical education. In learning physical education, many use large muscles such as running, catching, pushing, pulling, kicking, catching, and so on which are used in learning physical education at school.

Motoric ability is the process of a child learning to move the limbs skillfully. For this reason, children learn from the teacher about several movement patterns that they can do that can train dexterity, speed, strength, flexibility, and accuracy in hand-eye coordination. Developing motor skills is very necessary for children so that they can grow and develop optimally. Motoric ability is the terminology used in various skills that lead to mastery of basic movement skills of physical fitness activities (Basman, 2019).

Children who have good motor skills certainly have a basis for mastering specific motor skill tasks. All motor elements in every child can develop through sports activities and play activities that involve muscles. The more children experience motion, of course the more elements of motor skills are getting trained with the many motor experiences that are carried out. The course will increase their maturity in carrying out motor activities. In general, the purpose of motor learning is for children to have adequate movement skills while at the same time developing cognitive aspects, physical aspects, and affective/social aspects (Angelina & Musa, 2020).

Students who have good motor skills will be successful in achieving maximum performance, which means students can carry out sports activities well. Students will be able to study well and achieve good learning outcomes as well. Motoric ability is the quality of the results of individual movements in carrying out movements, the height of the movements that are not sports movements or movements in sports, or the maturity of the appearance of motor skills. The higher a person's motor skills, it is possible that his work power will be higher, and vice versa. Therefore the ability to move can be seen as a success in carrying out the task of moving skills.

The main function of motor skills is to develop the abilities and abilities of each individual, which are useful for enhancing work power. By having high motor skills, of course, individuals have a foundation for mastering specific motor skill tasks. By knowing the status of motor skills, it is hoped that students and teachers will provide the right activities for students so that students can develop their abilities or at least reduce their weaknesses. So the more often children experience movement activities, the elements of motor skills will also be trained and will add maturity in carrying out motor activities (Salman & Darsi, 2020).

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### CONCLUSION

The conclusion of the study shows that there is a relationship between motor skills and physical education learning achievements of students, with an  $r_{\text{count}}$  of 0.395 and a coefficient of determination of 15.60%. The correlation coefficient is positive, meaning that if the motor skills get better, the physical education learning achievement will get better. For teachers and students, the results of this study can be a reference for improving motor skills because they affect physical education learning achievement.

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